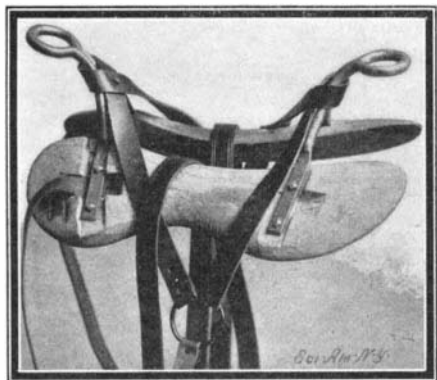


COMBINED PACK AND RIDING SADDLE.

The accompanying illustration shows an improved form of saddle which should be found very useful for prospecting purposes or for use in the army or for pack transportation of any kind. It combines all the advantages of a riding saddle with those of a pack



COMBINED PACK AND RIDING SADDLE.

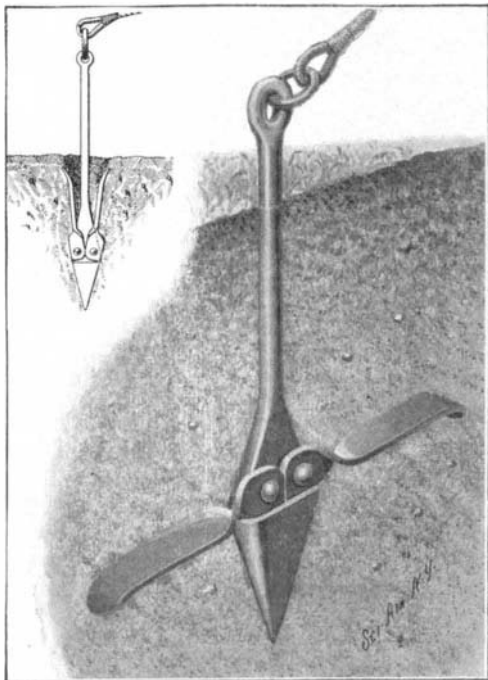
saddle, and the combination also affords other advantages not heretofore obtainable. The saddle consists of two opposing pads, preferably made of wood, which are spaced apart and placed at the customary angle to each other. The pads are held in position by means of two horns, the forward horn being practically the pommel of the saddle and the rear horn the cantle. These horns may each be made from one piece of round iron rod bent to the form shown in the illustration. The ends of these rods are flattened and fit against the pads, to which they are secured by screws.

Among the advantages urged for the improved saddle it may be stated that its superiority as an army saddle far outweighs its use as an ordinary pack saddle, as it is especially adapted for carrying the dead and wounded off the field, permitting the horse to be ridden back and enabling one man to do more of this work than at least four men on foot. The improved saddle is also well adapted for carrying light arms and ammunition to and from and on the field and light artillery through the mountains and on and off the field. A decided advantage is obtained by the use of the loop-knob for a horn, as it is easily grasped and held when mounting a fractious or bucking horse, and is particularly safe and advantageous where men mount upon the run and when horses are springing to their feet, having thrown themselves to dismount the rider.

The inventor of this combined pack and riding saddle is Mr. John T. Morgan, of Boise, Idaho.

LAND ANCHOR.

A recent invention provides an improved device adapted to secure to the ground a guy-rope, brace, or any similar form of supporting wire, and will be found particularly useful by telephone and telegraph linemen in place of the old style "dead man." The anchor comprises a central or main stem which, at the lower end, is enlarged, and is somewhat diamond shaped, with the free end tapering to a point, to facilitate driving the anchor into the ground. Two arms which are pivoted side by side to this head are each formed at the pivotal end with one edge round, concentric with the pivot, and the other left square. When



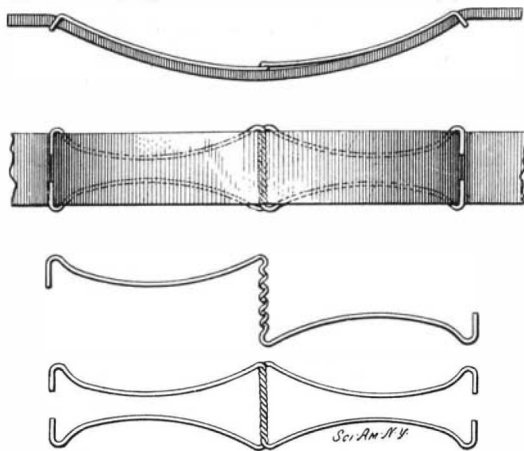
IMPROVED LAND ANCHOR.

the device is driven into the ground, these arms fold upward against the main stem and offer no obstruction, as they simply follow the hole made by the diamond-shaped head, the lower part of which is formed with an offset, which is in alignment with the pivotal portions of the arms. When the stem is drawn upward by the guy rope, the free ends of the arms will catch in the sides of the hole and diverge until they lie at right angles with the stem, when they are effectively prevented from swinging further by the squared edge of one arm engaging the corresponding edge of the other. Should either arm tend to swing downward before the other arm, it will be brought to rest in substantially the transverse position by engagement with the offset on the stem until the other arm is brought to the transverse position, and the squared shoulders are thus brought into engagement with each other. Heretofore in anchors of this type the strain has been made to come on an adjacent part of the support; but it will be seen that in this invention the strain on the arms is almost entirely taken by the supporting pivots, and not by the offset portion of the head.

The pivot pins can be made of tough material such as steel, while the main stem can be made of cheaper material, such as wrought iron, that is best adapted to resist strain of the arms. The inventor of this land anchor is Mr. William G. Beach, care of James J. Hayes, Vicksburg, Miss.

SPRING DRAFT ATTACHMENT.

The value of a spring tension in a draft attachment has long been recognized as relieving the jar or jerk of the pulling strain on the horses' shoulders, and enabling the team to steadily strain with the load in starting, as well as to avoid damaging strains on the harness and vehicle. As long ago as July, 1880, a patent was issued covering an invention of this char-



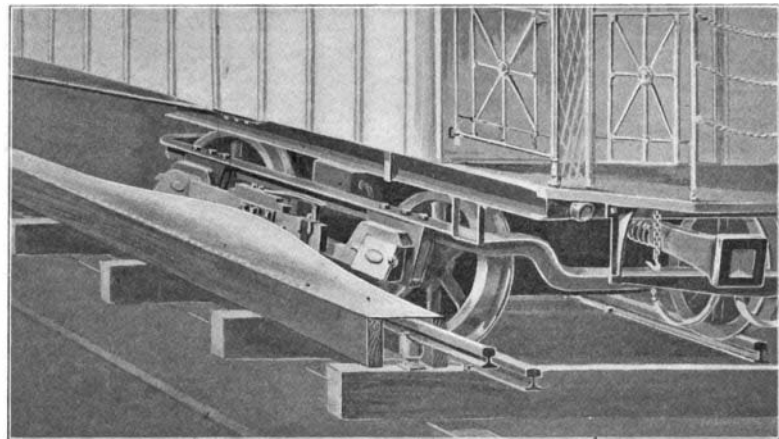
SPRING DRAFT ATTACHMENT.

acter. The invention comprises a bowed spring formed with eyelets or keepers at its ends, through which the trace was passed, so that the trace would lie upon the convex side of the bowed spring, and when the draft tension was applied to the trace, the trace would in straightening out flatten the bow spring, and thus maintain a tension in the draft attachment. Mr. George W. King, of 1325 Thirty-second Street, N. W., Washington, D. C., who invented this device, has just secured a patent on an improvement of the previous invention, which should bring the device into more general use. The improved attachment is so arranged that it will fit any size of trace, whereas the old attachment could not receive a trace that was wider than the eyelets, and a narrow trace would not occupy a middle position on the spring. Furthermore, it was difficult to thread a stiff trace through the eyelets, while in the improved form the attachment can be slipped into place without any trouble. The improved spring draft attachment, as clearly shown in the illustration, comprises two pieces of spring wire coiled about each other at the center, and formed at the ends with inwardly-projecting hooks. The device is applied laterally to the trace. The two arms at each end are sprung apart, and their hooked ends snapped over the edges of the trace. Owing to the spring pressure, these hooks will snugly fit over any width of trace and, moreover, the operation of applying the device to the trace, it will be readily seen, is very simple.

A NOVEL THIRD-RAIL PROTECTOR.

Winter time always brings with it a certain amount of difficulty for the third-rail railroad. Sleet, snow, and ice are only too apt to insulate the live rail so completely, that the contact shoes cannot perform their proper function of taking up the current. In summer time this difficulty naturally disappears. On the other hand, danger to human life is ever present.

No matter how cautious the track walker may be, there is always the possibility of grave danger with a naked live rail in close proximity to the track. In New York city the elevated railroad officials have sought to overcome the obstacles occasioned by the formation of ice and snow by the employment of scrapers, which make a wintry night hideous with their noise. For the protection of human life, abso-



NOVEL THIRD-RAIL PROTECTOR

lutely no means whatever have as yet been adopted.

To provide a guard for a third-rail, a guard which will protect the rail from sleet and snow, and which will likewise obviate danger to human life, is the purpose of an invention for which a patent has been granted to Mr. Jacob Martin, of 313 East 85th Street, New York city.

At the opposite sides of the rail are placed vertical guards which extend the full length of the rail and which are higher than the rail. To one of the rail-guards a supplemental guard or protector is secured which is composed of flexible material, such as canvas, canvas and rubber, or any other suitable material. The supplemental guard or protector is wide enough to cover the rail completely as well as the side guards, and whenever there is a curve in the track or whenever the rail is curved, the supplemental guard or protector is composed of sections, the guard or protector being divided transversely to form the section. One end of each of these separate sections is placed beneath the corresponding end of the next section. With the truck, a plow is connected which consists of a sheet of metal bent to represent one end of an ellipse. An opening is provided through which the contact shoe arms pass. The free end of the plow is bent downwardly at an abrupt angle, and the sides thereof are curved backwardly, and the end passes under the free edge of the flexible guard or protector.

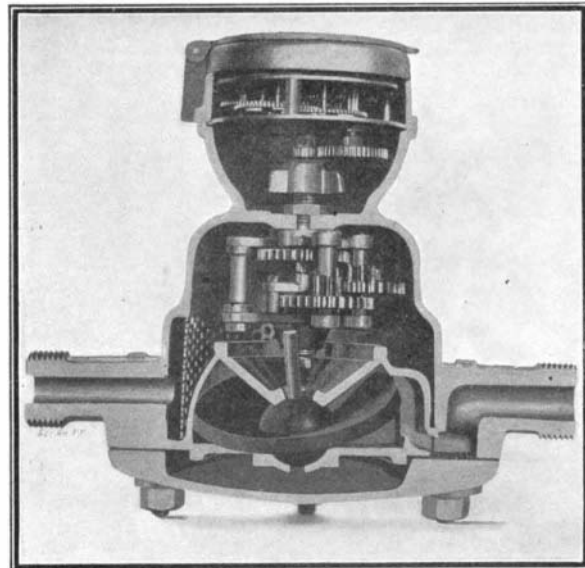
The free edge of the supplemental guard or protector is provided with a longitudinal strip of flexible metal, which is intended to give strength to the free edge of the flexible guard and to resist the friction and wear occasioned by the plow as it moves along.

Secured to the track near one end of the axles is an arm, having a foot-piece, which passes over the free edge of the supplemental guard or protector and serves to force it back into position after the shoe and plow have passed. This arm, however, is not essential.

As the car moves along the track the nose of the plow passes under the free edge of the flexible guard and raises it, and the shoe moves over the surface of the rail. As the car proceeds the free edge of the supplemental guard or protector drops into position and the rail is securely covered thereby at all times.

THE DISK TYPE OF WATER METER.

The design of a successful water meter is no simple task. The primary requisite, of course, is accuracy. At the same time this should not detract from the



THE DISK TYPE OF WATER METER.